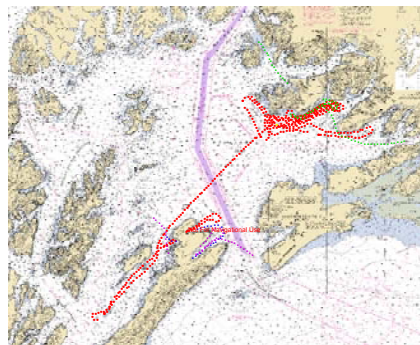


Airborne Lidar Measurements of Springtime Distributions of Herring in Prince William Sound and Kodiak Island



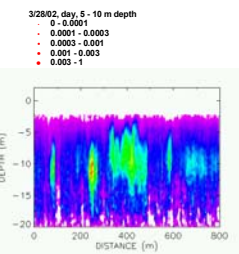
Prince William Sound with 2001 flight tracks

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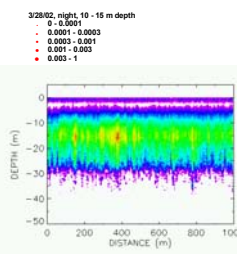


Kodiak March 2002

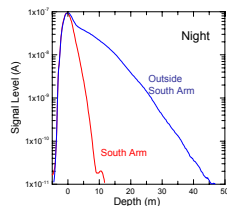
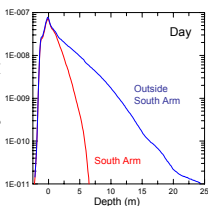
Main concentration was in South Arm of Ugank Bay.
These were not seen by the lidar.
Some schools, as well as birds and sea lions, were seen outside of South Arm in clearer water.
Some schools were seen in Ugak Bay.



School group near East Point



Layer in the same area that night



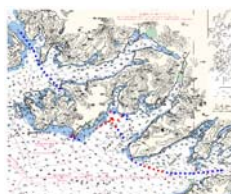
Lidar return in Ugank Bay – The water in South Arm is highly absorbing.

PWS March 2001

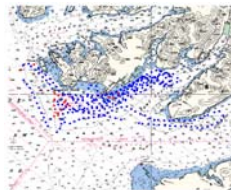
Contrary to expectations, no herring were found in Zaikov Bay.
Some fish were found in Port Gravina and Sheep Bay, but not in large quantities.



Zaikov Bay fish detections (red) and sample "echogram"



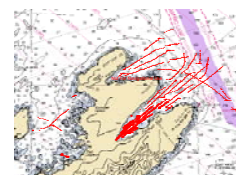
Port Gravina daytime fish detections (red) and sample echogram



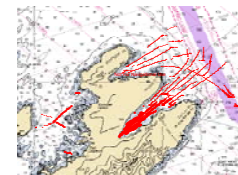
Port Gravina nighttime fish detections (red) and sample echogram

PWS March 2002

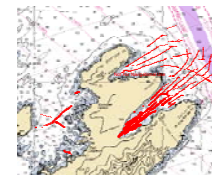
A lot of fish were seen in Zaikov Bay.
Spawning fish were seen on the north side of Port Gravina
Daytime surface schools were seen on the east side of Green Island.



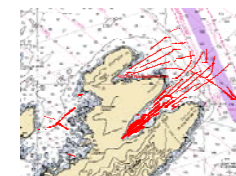
3/21/02, night, 0 - 5 m depth
0 - 0.0001
0.0001 - 0.0003
0.0003 - 0.001
0.001 - 0.003
0.003 - 1



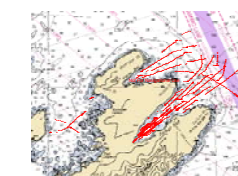
3/21/02, night, 5 - 10 m depth
0 - 0.0001
0.0001 - 0.0003
0.0003 - 0.001
0.001 - 0.003
0.003 - 1



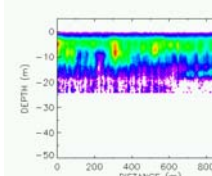
3/21/02, night, 10 - 15 m depth
0 - 0.0001
0.0001 - 0.0003
0.0003 - 0.001
0.001 - 0.003
0.003 - 1



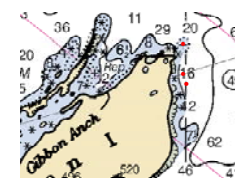
3/21/02, night, 15 - 20 m depth
0 - 0.0001
0.0001 - 0.0003
0.0003 - 0.001
0.001 - 0.003
0.003 - 1



3/21/02, night, 20 - 25 m depth
0 - 0.0001
0.0001 - 0.0003
0.0003 - 0.001
0.001 - 0.003
0.003 - 1



Zaikov Bay Echogram



Surface herring schools near Green Island – Echogram shows birds over dense fish.